having a rib root portion adjacent said shoe member and a rib free end portion remote from said rib root portion and said shoe member, said rib having a longitudinal midpoint, said rib member having a first half portion located between said root portion and said midpoint, said rib having a second half portion located substantially between said midpoint and said rib free end, said rib being composed of an elastomeric material having a Shore A hardness between 40 and 85 durometer;

c) providing a flexible blade member secured to said rib member, said blade member having a blade root portion adjacent said shoe member and a blade free end portion remote from said blade root portion, said blade member having an initial kick attacking blade surface portion and an initial kick lee blade surface portion corresponding to an initial relative motion between said blade member and the surrounding water created during an initial light kicking stroke such as used by a swimmer to achieve a relatively slow to moderate swimming speed, said rib being arranged to provide a majority of the structural support of said blade member relative to said shoe member as relatively light load conditions are exerted on said blade member during said initial light kicking stroke as said load is transferred from said blade member to said rib member and from said rib member to said shoe member, said rib having an attacking rib surface portion and a lee rib surface portion corresponding to said relative movement between said blade member and said water;

d) selecting the stiffness of said rib to allow an initial light kick deflection angle of at least 10 degrees, said rib taking on a corresponding light kick bending radius;

e) providing said rib with a sufficiently tall vertical rib dimension relative to said light kick bending radius to permit said attacking rib surface portion to experience an initial light kick elongation of at least 5 percent during said light kick deflection around said initial light kick bending radius during said initial light kicking stroke and to permit said lee rib surface portion to experience an initial light kick compression of at least 2 percent around said initial light kick bending radius during said light kicking stroke;

f) providing said rib free end portion with a sufficiently large cross section which extends longitudinally along said rib in an amount effective to substantially reduce the tendency for said rib to twist around a substantially lengthwise axis during said initial

light kick deflection and to substantially prevent said rib from buckling excessively under said light load conditions;

g) providing said rib with a sufficiently extensible and compressible material to permit said rib to experience said light kick elongation and said light kick compression around said light kick bending radius under said light load conditions created during said light kicking stroke;

h) providing said rib with sufficient flexibility to permit said rib to form a substantially S-shaped sinusoidal wave along its length during an inversion portion of a reciprocating light kicking stroke cycle existing between said initial light kicking stroke and a return light kicking stroke which is substantially equal in force and oppositely directed to said initial light kicking stroke, said S-shaped wave having a return light kick bend occurring around a transverse axis that forms substantially along said first half of said rib between said rib root portion and said midpoint of said rib during said inversion portion, said return light kick bend displacing said initial light kick bend substantially from said first half of said rib toward said rib free end portion in the form of a longitudinal initial light kick bend undulation, said return light kick bend being oppositely directed to said initial light kick bend undulation to define said substantially S-shaped wave, said initial light kick bend undulation creating a whip-like snapping motion at said rib free end portion as said initial light kick bend undulation reaches said rib free end portion; and

i) selecting said elastomeric material to have sufficient memory to permit the energy stored within said initial light kick elongation and said initial light kick compression to be released during said snapping undulation in an amount effective to create a significant increase in the amplitude of oscillation occurring at said rib free end portion, whereby said increase in said amplitude creates a significant increase in swimming speed.

24. The method of Claim 26 wherein said vertical rib dimension initial bend attacking surface elongation is not less than 10% during said initial light kicking stroke.

28. The method of Claim 26 wherein said initial bend lee surface compression is not less than 5% during said initial light kicking stroke.

29. The method of Claim 26 wherein said initial light kick deflection angle is not less than 20 degrees.

30. A method for improving the performance of a swim fin comprising:

a) providing a shoe member,

b) providing at least one flexible elongated load bearing rib member secured to said shoe member and extending forward of said shoe member, said rib member having a rib root portion adjacent said shoe member and a rib free end portion remote from said rib root portion and said shoe member, said rib having a longitudinal midpoint, said rib member having a first half portion located between said root portion and said midpoint, said rib having a second half portion located substantially between said midpoint and said rib free end, said rib being composed of an elastomeric material having a Shore A hardness between 40 and 85 durometer;

c) providing a flexible blade member secured to said rib member, said blade member having a blade root portion adjacent said shoe member and a blade free end portion remote from said blade root portion, said blade member having an initial kick attacking blade surface portion and an initial kick lee blade surface portion corresponding to an initial relative motion between said blade member and the surrounding water created during an initial light kicking stroke such as used by a swimmer to achieve a relatively slow to moderate swimming speed, said rib being arranged to provide a majority of the structural support of said blade member relative to said shoe member as relatively light load conditions are exerted on said blade member during said initial light kicking stroke as said load is transferred from said blade member to said rib member and from said rib member to said shoe member, said rib having an attacking rib surface portion and a lee rib surface portion corresponding to said relative movement between said blade member and said water;

d) selecting the stiffness of said rib to allow an initial light kick deflection angle of at least 10 degrees, said rib taking on a corresponding light kick bending radius;

e) providing said rib with a sufficiently tall vertical rib dimension relative to said light kick bending radius to permit said attacking rib surface portion to experience an initial light kick elongation of at least 5 percent during said light kick deflection around said initial light kick bending radius during said initial light kicking stroke and to permit said lee rib surface portion to experience an initial light kick compression of at least 2 percent around said initial light kick bending radius during said light kicking stroke;

f) providing said rib free end portion with a substantially round cross section having a sufficient widthwise dimension which extends longitudinally along said rib in an amount effective to permit said rib to experience a limited amount of twisting around a lengthwise axis during said light kick bend while said cross section maintains a substantially consistent vertical dimension across the centroidal bending axis of said cross section of said rib during said twisting in an amount effective to substantially reduce the tendency for said rib to buckle under said relatively light load conditions;

g) providing said rib with a sufficiently extensible and compressible material to permit said rib to experience said light kick elongation and said light kick compression around said light kick bending radius under said light load conditions created during said light kicking stroke;

h) providing said rib with sufficient flexibility to permit said rib to form a substantially S-shaped sinusoidal wave along its length during an inversion portion of a reciprocating light kicking stroke cycle existing between said initial light kicking stroke and a return light kicking stroke which is substantially equal in force and oppositely directed to said initial light kicking stroke, said S-shaped wave having a return light kick bend occurring around a transverse axis that forms substantially along said first half of said rib between said rib root portion and said midpoint of said rib during said inversion portion, said return light kick bend displacing said initial light kick bend substantially from said first half of said rib toward said rib free end portion in the form of a longitudinal initial light kick bend undulation, said return light kick bend being oppositely directed to said initial light kick bend undulation to define said substantially S-shaped wave, said initial light kick bend undulation creating a whip-like snapping motion at said rib free end portion as said initial light kick bend undulation reaches said rib free end portion; and

i) selecting said elastomeric material to have sufficient memory to permit the energy stored within said initial light kick elongation and said initial light kick compression to be released during said snapping undulation in an amount effective to create a significant increase in the amplitude of oscillation occurring at said rib free end portion, whereby said increase in said amplitude creates a significant increase in swimming speed.

6 ~~31.~~ The method of Claim 5 ~~30~~ wherein said vertical rib dimension initial bend attacking surface elongation is not less than 10% during said initial light kicking stroke.

Rewrite 7 ~~32.~~ The method of Claim 5 ~~30~~ wherein said initial bend lee surface compression is not less than 5% during said initial light kicking stroke.

8 ~~33.~~ The method of Claim 5 ~~30~~ wherein said initial light kick deflection angle is not less than 20 degrees.

9 ~~34.~~ A method for improving the performance of a swim fin comprising:

a) providing a shoe member,

b) providing at least one flexible elongated load bearing rib member secured to said shoe member and extending forward of said shoe member, said rib member having a rib root portion adjacent said shoe member and a rib free end portion remote from said rib root portion and said shoe member, said rib having a longitudinal midpoint, said rib member having a first half portion located between said root portion and said midpoint, said rib having a second half portion located substantially between said midpoint and said rib free end, said rib being composed of an elastomeric material having a Shore A hardness between 40 and 85 durometer;

c) providing a flexible blade member secured to said rib member, said blade member having a blade root portion adjacent said shoe member and a blade free end portion remote from said blade root portion, said blade member having an initial kick attacking blade surface portion and an initial kick lee blade surface portion corresponding to an initial relative motion between said blade member and the surrounding water

created during an initial hard kicking stroke such as used by a swimmer to achieve a relatively fast swimming speed, said rib being arranged to provide a majority of the structural support of said blade member relative to said shoe member as relatively heavy load conditions are exerted on said blade member during said initial hard kicking stroke as said load is transferred from said blade member to said rib member and from said rib member to said shoe member, said rib having an attacking rib surface portion and a lee rib surface portion corresponding to said relative movement between said blade member and said water;

d) selecting the stiffness of said rib to allow an initial hard kick deflection angle of at least 30 degrees, said rib taking on a corresponding hard kick bending radius;

e) providing said rib with a sufficiently tall vertical rib dimension relative to said hard kick bending radius to permit said attacking rib surface portion to experience an initial hard kick elongation of at least 10 percent during said hard kick deflection around said initial hard kick bending radius during said initial hard kicking stroke and to permit said lee rib surface portion to experience an initial hard kick compression of at least 2 percent around said initial hard kick bending radius during said hard kicking stroke;

f) providing said rib free end portion with a sufficiently large cross section which extends longitudinally along said rib in an amount effective to substantially reduce the tendency for said rib to twist around a substantially lengthwise axis during said initial hard kick deflection and to substantially prevent said rib from buckling excessively under said hard load conditions;

g) providing said rib with a sufficiently extensible and compressible material to permit said rib to experience said hard kick elongation and said hard kick compression around said hard kick bending radius under said hard load conditions created during said hard kicking stroke;

h) providing said rib with sufficient flexibility to permit said rib to form a substantially S-shaped sinusoidal wave along its length during an inversion portion of a reciprocating hard kicking stroke cycle existing between said initial hard kicking stroke and a return hard kicking stroke which is substantially equal in force and oppositely directed to said initial hard kicking stroke, said S-shaped wave having a return hard kick bend occurring around a transverse axis that forms substantially along said first half of

said rib between said rib root portion and said midpoint of said rib during said inversion portion, said return hard kick bend displacing said initial hard kick bend substantially from said first half of said rib toward said rib free end portion in the form of a longitudinal initial hard kick bend undulation, said return hard kick bend being oppositely directed to said initial hard kick bend undulation to define said substantially S-shaped wave, said initial hard kick bend undulation creating a whip-like snapping motion at said rib free end portion as said initial hard kick bend undulation reaches said rib free end portion; and

i) selecting said elastomeric material to have sufficient memory to permit the energy stored within said initial hard kick elongation and said initial hard kick compression to be released during said snapping undulation in an amount effective to create a significant increase in the amplitude of oscillation occurring at said rib free end portion, whereby said increase in said amplitude creates a significant increase in swimming speed.

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10 35. The method of Claim 34 wherein said vertical rib dimension initial bend attacking surface elongation is not less than 20% during said initial light kicking stroke.

11 36. The method of Claim 34 wherein said initial bend lee surface compression is not less than 10% during said initial light kicking stroke.

12 37. The method of Claim 34 wherein said initial light kick deflection angle is not less than 50 degrees.

REMARKS

Applicant has cancelled claims 1-25 without prejudice and has added new claims 26-37. Claims 1-25 were rejected under 35 U.S.C. § 102(b) as being anticipated by prior art of record and under 35 U.S.C. § 112, first paragraph, for lack of support in the specification. Claims 1-12, 14-16, 19, 22 and 23 were rejected as being indefinite under 35 U.S.C. § 112, second paragraph. Accordingly, the currently pending claims in this application are Claims 26-37.